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ABSTRACT

A survey was administered to a sample of about 10,000 members of the National Federation of Independent Business in 1985 to ascertain a variety of information about the use of computers in the nation's small businesses, including the extent of their use, training needs of users, and impacts and benefits. Major findings summarized from the 2,813 usable questionnaires returned include the following: (1) 40 percent of small businesses have acquired computers, with 95 percent of businesses having more than 100 employees having them; (2) no single computer manufacturer dominates the small business computer market--most popular brands are IBM, Radio Shack, and Apple; (3) small businesses with computers have invested more than $36,000 in computer hardware and software; (4) the most common uses of computers in small businesses are word processing and accounting; (5) small businesses that have not acquired computers cite cost as the main factor discouraging them from purchasing computers; (6) most small business owners who have acquired computers believe they are easy to learn to use; (7) small businesses rely on a variety of means to learn to use computers; (8) small business owners cite a number of benefits from using computers, such as improving productivity, making work easier, improving work quality, and reducing work time; (9) many small businesses report having problems with their computers; and (10) overall, the vast majority of small business owners with computers are satisfied with them. (The document includes 29 tables, a description of the survey sample, and a copy of the questionnaire.) (KC)

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Institute for Enterprise Advancement

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COMPUTERS IN SMALL BUSINESS

Russell W. Rumberger
and
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Computers in Small Business

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Preface

The original intent of this study was to examine the stimulants, reservations, means, and problems that small-business owners encounter in the process of introducing new technology into their businesses. Most attention on the link between small business and technology has been focused on small business as a producer of technology. But small business is also a consumer of it. In fact, small businesses are far more frequently consumers of technology than producers, and its timely introduction (or non-introduction) may affect a firm's market viability. As a result, the process by which small business "consumes" new technologies is not only important to small business, but to a broad spectrum of interests concerned with national productivity as well.

Unfortunately when designing the study, it soon became evident that "technology" or "new technology" could not be operationally defined. Not only does technology arise in an infinite variety of forms, but a new technology for one small business may be discarded technology for another. There existed the further complication that the newest technology is not always the most efficient use of a particular firm's resources. Thus, practical considerations required that our efforts be refocused.

The computer was selected to characterize new technology by definition. Computers are comparatively advanced technologies. Moreover, they are in sufficiently common usage so that a survey sample would produce a large number of owners for analytic purposes. Computers are also sufficiently well known so that even those without one probably would have developed some opinion on their use. As a result, the study's focus shifted to the computer, recognizing full well the difficulties in extrapolating study finding to other technologies.

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August, 1986

Executive Summary

In October 1985 a survey was administered to a sample of about 10,000 members of the National Federation of Independent Business (NFIB). The survey was a joint undertaking of the NFIB and the Institute for Research on Educational Finance and Governance (IFG), Stanford University.*

The purpose of the survey was to ascertain a variety of information about the use of computers in the nation's small businesses, including the extent and type of computer investment, uses, education and training needs, and impacts and benefits. This executive summary highlights the major findings from the 2813 usable questionnaires that were returned:

- Forty percent of small businesses have acquired computers. The proportion of firms with computers varies by the size of the firm, with 26 percent of the smallest firms (1 to 4 employees) having computers and 95 percent of the largest firms (100 or more employees) having computers.
- No single computer manufacturer dominates the small business computer market. The most common brands of computer equipment are IBM, Radio Shack, and Apple.
- Small businesses with computers have invested an average of over $36,000 on computer hardware and software, with the average expenditure ranging from $8400 in the smallest firms to over $150,000 in the largest firms. This represents a total investment of over $33 billion by the nation's small businesses.
- Small businesses use computers for a variety of office tasks, ranging from word processing to scheduling. The most common uses are word processing and accounting.

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* The Institute for Research on Educational Finance and Government (IFG) became the Stanford Education Policy Institute in March 1986.

- Among small businesses without computers, the primary reason for not acquiring a computer is that they are too expensive. The most commonly cited reasons that would cause firms to consider acquiring a computer in the future are an improved financial status for the firm and a better understanding of computers.
- Small business owners rely on a variety of information sources to find out about computers. The most common sources are business associates, computer sales representatives, and business or computer magazines.
- The majority of small business owners who have acquired computers believe they are easy to learn to use. The most important worker characteristics for learning to use the computer are interest and enthusiasm, reading and comprehension skills, and reasoning skills, with interest and enthusiasm being the single most important characteristic.
- Small businesses rely on a variety of means in learning to use computers. Forty-five percent rely on on-site training, 25 percent use manuals, and 19 percent use off-site training. Among firms who received formal training, an average of 30 hours was supplied, primarily by the vendor who supplied the computer equipment.
- Small business owners cite a number of benefits from using computers. More than half of all computer users report that computers improve productivity, make work easier, improve the quality of work, and improve information about the business. Three-quarters of computer users report that computers have reduced the amount of time needed to do their work.
- Many small businesses, however, do report having problems with their computers. More than half of all computer users report that computers are more time consuming than expected and 27 percent report inadequate vendor support. One-quarter report having had hardware or software problems during the last year.
- Overall, the vast majority of small business owners who have acquired computers report they are very satisfied or moderately satisfied with their computers. Asked if they could redo their decision, half report they would not change anything, with most of the remainder reporting that they would purchase different hardware or software.

Chapter 1

Introduction

Computers are a new tool of small businesses. While large firms have made use of computers for some time, it is only with the introduction of the micro or personal computers in the early 1980s that computers became affordable enough for widespread use in small businesses. And with the increasing array of new software growing each year, computers have become a versatile tool in the operation of many.

Yet beyond the apparent fact that many small businesses have recently acquired computers, there is little concrete information available about computer use in small businesses. To what extent are small businesses making use of computers? What kinds of hardware and software do they use? What sources of information do small business owners rely on to find out about computers? What kinds of education and training are required to use computers? What are the benefits and impacts? Until now, the answers to these and other important questions have not been available. A major report on office automation by the Office of Technology Assessment issued in December 1985 notes, for example, how little information is available on computer use in small businesses.[1]

In order to fill this void, the Institute for Research on Educational Finance and Governance (IFG)* and the National Federation of Independent Business (NFIB) collaborated in the design of a survey to document the use of computers in small businesses. The purpose of the survey was to solicit a variety of information about computer use in small businesses, including information on the extent of computer use, sources of information about computers, education and training requirements, and experiences in using computers.

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[1] U.S. Congress, Office of Technology Assessment, *Automation of America's Offices* (Washington, D.C.: Government Printing Office, OTA-CIT-287, December 1985), p. 283.

* The Institute for Research on Educational Finance and Government (IFG) became the Stanford Education Policy Institute in March 1986.

The survey instrument was designed in several steps. An initial set of questions was developed by the staffs of IFG and NFIB through in-depth discussions with several small business owners. A preliminary questionnaire was then sent to about 30 members of the NFIB from across the country. Responses to this field test were then used to develop a final version of the survey questionnaire. A complete copy of the final survey instrument appears in Appendix B of this report.

The format used in the design of the survey and all the procedures used to administer the survey were based on a survey design method developed by Don Dillman.[2] The method specifies all the procedures that should be followed in order to yield a maximum response rate from the population being surveyed. This includes the way questions are arranged on the page, the layout of the cover, the content of the cover letter, and the way the questionnaire is administered. An attempt was made to follow all of the recommended procedures that time and money allowed.

The final version of the questionnaire was mailed to a representative sample of the NFIB membership. A total of 10,140 questionnaires were mailed during the first week of October, 1985. Postcard reminders were mailed one week after the initial mailing. New copies of the questionnaire were mailed three weeks after the initial mailing to all members who had not yet responded. A total of 2813 usable surveys were returned by the third week of November and were used in the present analysis. This represents a response rate of 28 percent, which is considerably higher than other surveys of this population. For instance, a recent survey of small businesses conducted by the Committee for Economic Development had only a 10 percent response rate.[3] Moreover, respondents to this survey appear to be quite representative of the entire population of small businesses. Appendix A presents a detailed discussion of the sampling validity of the survey.

In this paper we report the major findings from the survey. The findings are grouped into several areas. In the next chapter we discuss the use of computers in small businesses. In Chapter 3 we discuss decisions about acquiring computers. In Chapter 4 we discuss education and training needs.[4] In Chapter 5 we discuss the impacts of computers on small businesses. In the last section we summarize the findings of the survey and make some general conclusions.

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[2] Don A. Dillman, *Mail and Telephone Surveys: The Total Design Method* (New York: John Wiley and Sons, 1978).

[3] Research and Policy Committee, Committee for Economic Development, *Investing in Our Children* (New York: Committee for Economic Development, 1985), p. 18.

[4] A more in-depth discussion of education and training needs can be found in Henry M. Levin and Russell W. Rumberger, "Education and Training Needs for Using Computers in Small Businesses" (Stanford: Stanford Education Policy Institute, June 1986).

Chapter 2

Computer Use

Extent and Date of Computer Acquisition

Forty percent of all small businesses report having computers as of the fall of 1985 (Table 1). Another 18 percent of firms considered acquiring a computer, but had not done so at the time of the survey.

The extent of computer use varies by size of firm, industry, and the extent of recent sales growth. Ninety-five percent of the largest firms (those with 100 or more employees) report having computers, while only about one-quarter of the smallest firms (those with 1 to 4 employees) report having them. Computers are also more likely to be found in small businesses that have experienced more rapid sales growth over the last two years.

Computer use is most widespread in professional services (64 percent) and finance, insurance, and real estate (63 percent). Computers are least widely used in agricultural and related industries (25 percent), business and personal services (29 percent), and retail trade (30 percent). Some of these differences arise from the nature of business in different industries and the need to use computers. They also result from differences in the size of firms operating in various industries. Business and personal service firms, for example, tend to be smaller than manufacturing firms and hence less likely to use computers.

Most small businesses acquired their computers in the 1980s. Even among those firms who have been in business more than five years, only 23 percent with computers acquired them before 1980 (Table 2). The majority of such firms first acquired computers after 1983, with about one-quarter of all firms first acquiring their computers in 1984.

Not surprisingly, large firms are more likely to have first acquired computers earlier than smaller firms (Table 2). Almost half of the largest firms (with 100 or more employees) first acquired their computers before 1980, while only 14 percent of the smallest firms (1 to 4 employees) had acquired a computer by that time. Smaller firms are more

TABLE 1. Computer Use by Size of Firm, Industry, and Growth Rate

(percent distribution)

	Firms with Computers	Firms without Computers	
		Have Investigated	Have Not Investigated
All firms (N = 2742)	40	18	42
Size of Firm (Number of FTE employees)			
1–4 (N = 1034)	26	16	58
5–9 (N = 746)	39	22	39
10–19 (N = 355)	54	23	23
20–49 (N = 244)	73	14	13
50–99 (N = 73)	82	10	8
100 + (N = 42)	95	5	0
Industry			
Construction (N = 315)	36	18	46
Manufacturing (N = 323)	47	16	37
Transportation, Communications, & Public Utilities (N = 60)	50	15	35
Wholesale trade (N = 192)	54	19	27
Retail (N = 816)	30	20	50
Agriculture, Forestry, Fishing (N = 136)	25	16	59
Finance, Insurance and Real Estate (N = 195)	63	21	16
Business and personal services (N = 404)	29	18	53
Professional services (N = 261)	64	12	24
Sales growth over last 2 years			
New business (N = 181)	18	22	60
Declined 5% or more (N = 385)	30	16	54
No change (N = 389)	36	14	50
Increased 5 to 15% (N = 851)	43	18	39
Increased 15 to 25% (N = 413)	51	19	30
Increased 26% or more (N = 349)	50	18	32

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE 2. Year First Acquired Computers by Size of Firm (percent distribution)

Year	Size of Firm (Number of FTE* employees) 1–4	5–9	10–19	20–49	50–99	100+	All Firms
1979	14	17	26	30	42	44	23
1980	6	8	12	13	13	19	10
1981	5	10	6	8	10	9	8
1982	12	11	10	13	8	6	11
1983	21	16	12	10	13	6	14
1984	22	21	18	19	4	6	19
1985	19	18	16	7	10	9	15
Total	100	100	100	100	100	100	100
(N)	(156)	(212)	(145)	(135)	(48)	(32)	(728)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

likely to have first acquired computers only in the last year or two when the price of computers had declined substantially, more applications software was available, and computers were viewed as more "user-friendly."

Equipment

Computer equipment used in small businesses comes from a wide variety of manufacturers. Thirty percent of all small businesses with computers have IBM equipment, 13 percent have Radio Shack equipment and another 13 percent have Apple equipment (Table 3). The next most common brands are Digital, Commodore, and Burroughs, although these brands are owned by only a small percentage of firms. Almost half of all small businesses with computers own a wide variety of other brands.

The brands of computer equipment acquired by small businesses vary by firm size. Larger firms are more likely to own IBM computers than smaller firms, although larger firms are more likely to own other brands of computer equipment as well (Table 3). For example, more than half of all firms with 100 or more employees own IBM computers, but more than half also own other brands of computer equipment. In contrast, smaller firms are more likely to own a variety of different major brands. Radio Shack and Apple are more common in the smallest firms, with Digital computers fairly common in all except the smallest firms. But again, firms of all sizes are likely to own a variety of other brands as well.

The brands of computer equipment used in small businesses depend, in part, on when computers were first

TABLE 3. Percent of Firms With Computers by Computer Manufacturer and Size of Firm

	Size of Firm (Number of FTE* employees)						
Manufacturer	1–4	5–9	10–19	20–49	50–99	100+	All Firms
IBM	25	28	27	35	47	53	30
Radio Shack	12	14	12	15	10	5	13
Apple	19	10	15	8	8	5	13
Digital	5	5	4	8	5	8	5
Commodore	5	2	5	2	—	—	3
Burroughs	1	2	4	4	8	3	3
Other	40	43	48	56	48	65	46
(N)	(266)	(288)	(188)	(178)	(60)	(40)	(1020)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

acquired by the firm. Businesses that first acquired their computers in the 1970s or earlier, before the arrival of the personal computer, were more likely to acquire computers from manufacturers of larger scale machines, such as IBM and Burroughs (Table 4). With the widespread introduction of the personal computer in 1981 and 1982, no single brand dominated the market so that firms first acquiring computers in those years were more likely to acquire a

TABLE 4. Percent of Firms with Computers by Computer Manufacturer and Year Computer First Acquired

	Year Computer First Acquired						
Manufacturer	<80	80	81	82	83	84	85
IBM	35	23	28	28	27	26	37
Radio Shack	12	23	19	18	11	10	6
Apple	8	11	20	17	14	14	12
Digital	7	5	9	2	6	4	5
Commodore	—	2	—	—	6	4	7
Burroughs	8	7	3	1	1	1	1
Other	53	57	44	53	47	41	33
Total	100	100	100	100	100	100	100
(N)	(212)	(92)	(81)	(127)	(175)	(233)	(178)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

wide variety of computers. Among small businesses that first acquired computers in 1981, as many selected Radio Shack equipment in that year as IBM.

Over time certain brands have begun to dominate the computer market among small businesses. In particular, IBM appears to be capturing an increasing share of the computer market. More than one-third of all businesses that first acquired computers in 1985 selected IBM equipment. Among major brands, Radio Shack and Apple show a declining share of the market, while Digital appears to be holding a constant share.

Computer systems can be grouped into two types. One type is the multiuser system, a computer that can support more than one terminal and can therefore serve several users at one time. The other type is the personal or microcomputer, a computer that serves a single user at a time. As computers have become more powerful and able to support more sophisticated operating systems, the distinction between these two types of computers has become blurred. For example, the new generation of personal computers, such as the IBM PC/AT can be used either as a personal computer or a multiuser system.

In this survey, computer systems were divided into two types—multiuser systems and personal computers. A multiuser system is a computer supporting more than one terminal. Since some personal computers are capable of supporting more than one terminal, this grouping probably understates the percentage of multiuser systems and overstates the percentage of personal computers.

Among owners of computers in small businesses, about one-third own multiuser systems and about three-quarters

TABLE 5. Firms with Multiuser Systems and Personal Computers by Size of Firm

	Size of Firm (Number of FTE* employees)						
	1–4	5–9	10–19	20–49	50–99	100+	All Firms
Multiuser Systems							
Percent with	16	25	38	53	65	73	34
Average number of terminals	5	4	5	7	8	13	6
Personal computers							
Percent with	83	74	71	61	67	63	73
Average number	1	1	1	2	2	4	2
(N)	(266)	(288)	(188)	(178)	(60)	(40)	(1020)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

firms have both types of systems. Businesses that have multiuser systems have an average of 6 terminals. Businesses with personal computers own an average of 2 machines per firm.

As might be expected, larger firms are more likely to own multiuser systems, while smaller firms are more likely to own personal computers. The average number of terminals and personal computers also varies by size of firm. Among the largest businesses (with 100 or more employees), those with multiuser systems have an average of 13 terminals and those with personal computers own an average of 4 computers. Among the smallest firms (with 1 to 4 employees), those with multiuser systems have an average of 5 terminals and those with personal computers own an average of one machine per firm.

Expenditures

Small businesses have invested heavily in computer hardware and software. Forty-one percent of all small businesses with computers have invested more than $10,000 in computer hardware and 15 percent have invested more than $40,000 (Table 6). These firms have invested an average of more than $25,000 in computer hardware or an average of almost $15,000 per computer.

Expenditures for computer software are less, but still quite significant. Two-thirds of all small businesses with computers have invested more than $1,000 in computer software and one-third have invested more than $5,000. These firms have spent an average of almost $10,000 on software. This figure is about one-third the average expenditure on hardware. Clearly, software expenditures represent a major portion of the cost of using computers.

Not surprisingly, expenditures on computer software and hardware vary widely by size of firm. The smallest firms (those with 1 to 4 employees) have invested an average of $7200 on computer hardware, or $5400 per computer. The largest firms (those with 100 or more employees) have invested an average of over $100,000 on computer hardware, or almost $60,000 per computer. Average software expenditures range from $2100 in the smallest firms to $40,000 in the largest firms and represent about one-third to one-half of average hardware expenditures.

Total expenditures for computer hardware and software average more than $36,000 for small businesses with computers. This represents an investment of 2 to 8 percent of total annual sales. Based on these figures, total investment in computers by the nation's small businesses exceeds $33 billion.

TABLE 6. Hardware and Software Expenditures by Size of Firm

	Size of Firm (Number of FTE* employees)						
	1–4	5–9	10–19	20–49	50–99	100+	All Firms
Hardware expenditures							
Percent distribution							
Less than $1000	8	2	5	1	—	—	4
$1000–$5000	56	35	26	15	13	—	33
$5001–$10000	20	30	24	21	11	9	23
$10001–$40000	14	26	31	35	34	34	26
More than $40000	1	8	14	28	42	56	15
Mean expenditure ($)	7200	13600	21600	37400	87900	113200	25600
Mean expenditure per computer ($)	5400	9800	14800	19900	34500	57300	14700
Software expenditures							
Percent distribution							
Less than $1000	57	31	27	16	6	3	31
$1000 to $5000	35	46	36	33	23	12	36
$5001–$10000	7	13	18	16	17	15 13	
$10001–$40000	2	9	15	30	38	36	15
More than $40000	—	1	3	4	15	33	4
Mean expenditure ($)	2100	5200	7500	11200	42600	40100	9700
Total expenditures							
Mean	8400	18400	30000	49400	137900	157600	36300
Mean/annual sales (percent)	8	4	4	3	2	3	5
(N)	(222)	(258)	(168)	(150)	(53)	(32)	(883)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Applications

Computers are used to perform a wide variety of office functions in small businesses. In some businesses computers may also be used in the design and production of goods, but in this survey questions of computer use were limited to office functions. Office uses of computers can range from relatively simple uses, such as word processing and electronic filing, to more complex uses such as statistical analyses and scheduling.

Small businesses use computers to perform many of these office tasks. More than half of all small businesses with computers used them for word processing and account-

ing (Table 7). More than 40 percent of all firms also used them for doing spreadsheets, payroll, billing, and mailing lists. The least common uses were electronic filing, statistical analysis, communications, and scheduling.

In some cases, office uses of computers vary by firm size; in other cases they do not. The extent of word processing, for example, is fairly similar among firms. In many other areas, however, uses do vary widely. Larger firms are much more likely to use computers for accounting, payroll, billing, mailing lists, and inventory than smaller firms. Larger firms are also more likely to use computers for more complex office functions, such as statistical analysis and scheduling. The only case where small firms are more heavy users of computers is electronic filing, which may be because smaller firms have less filing to perform than larger firms.

Owning a computer reduces the use of manual methods and outside contractors in the performance of office tasks. Yet small businesses with computers do not always use their computers for these tasks. In the case of accounts payable, for example, about half of all small businesses with computers use the computer to perform this task, with most of the remainder using manual methods (Table 8). Firms without computers do accounts payable almost entirely through manual methods. Similar patterns exist for other office functions. In some cases, owning a computer

TABLE 7. Percent of Firms Using Applications by Size of Firm

Application	Size of Firm (Number of FTE* employees) 1–4	5–9	10–19	20–49	50–99	100+	All Firms
Word Processing	65	57	56	49	60	58	58
Electronic Filing	26	24	17	17	27	13	22
Spreadsheets	43	46	41	56	68	50	48
Data base	25	32	28	32	43	43	31
Accounting	50	64	74	79	95	85	67
Payroll	20	30	43	60	73	85	40
Billing	30	46	51	57	65	63	46
Mailing lists	43	41	41	42	53	60	43
Inventory	26	34	42	47	62	63	38
Statistical Analysis	14	24	20	30	37	43	23
Communications	14	16	18	12	20	28	16
Scheduling	6	7	11	16	18	20	10
Other	21	16	10	13	12	13	15
(N)	(266)	(288)	(188)	(178)	(60)	(40)	(1020)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE 8. Methods of Performing Office Tasks by Computer Status

(percent distribution)

	With a Computer	Manually	Outside Contractor	Not Applicable
Firms with computers (N = 1050)				
Accounts payable	44	47	2	7
Accounts receivable	57	32	2	8
Billing	53	36	1	10
Mailing lists	56	18	3	23
Estimating	26	39	1	34
Inventory	43	30	2	26
Payroll	44	40	11	6
Taxes: quarterly	33	40	22	5
Taxes: annually	31	32	32	5
Firms without computers (N = 1505)				
Accounts payable	1	95	3	2
Accounts receivable	1	90	3	5
Billing	1	87	2	10
Mailing lists	2	63	6	30
Estimating	1	75	2	22
Inventory	1	85	3	12
Payroll	2	84	7	7
Taxes: quarterly	1	57	38	4
Taxes: annually	2	42	55	1

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

also reduces the use of outside contractors, such as bookkeeping services and accountants. The only exception is in the case of payroll, where businesses with computers are more likely to use outside contractors than businesses without computers. But this could be influenced by the size of the firm as well as whether the firm owns a computer.

Some small business owners add more office tasks to their computer over time. As new software becomes available, software prices decline, and computer users become more familiar with the capability of their machines, more office tasks are likely to get transferred to the computer. Consequently, the use of manual methods and outside contractors should decline over time.

Chapter 3

Decisions About Acquiring a Computer

Reasons for Acquiring a Computer

Small businesses acquire computers for a number of reasons. Computers can reduce costs of performing a given amount of work by saving time or other resources. They can increase the amount of work performed with a given amount of time and other resources thereby increasing productivity. Finally, computers can improve the quality of work performed and improve the amount and quality of information about the business, which could lead to improvements in the operation of the firm.

Survey respondents cited all of these reasons for acquiring computers. One-third of small businesses that have acquired computers did so primarily to improve productivity (Table 9). Another one-third acquired them primarily to get better information about the firm. The remaining one-third acquired them primarily for other reasons, including reducing costs and improving quality.

The primary reasons for acquiring computers varied by industry. Increasing productivity was cited more often by firms in professional services and firms in finance, insurance, and real estate; it was cited least often by firms in agriculture, forestry, and fishing and firms in business and personal services. Better information was cited more often by firms in agriculture, forestry, and fishing and firms in construction; it was cited least often by firms in finance, insurance, and real estate and firms in professional services.

TABLE 9. Primary Reason for Acquiring a Computer by Industry (percent distribution)

	Increase Productivity	Reduce Costs	Improve Quality	Better Information	Keep up with Others	Other Reasons
All firms (N = 1006)	33	10	16	32	3	6
Industry						
Construction (N = 107)	31	8	10	41	1	8
Manufacturing (N = 142)	30	7	16	39	1	8
Transportation, Communications, Public Utilities (N = 26)	31	15	12	35	—	8
Wholesale (N = 102)	35	11	13	38	—	3
Retail (N = 231)	25	12	13	38	4	8
Agriculture, Forestry, Fishing (N = 30)	23	7	3	57	3	7
Finance, Insurance, Real Estate, (N = 114)	43	5	25	15	9	4
Business, Personal Services (N = 106)	26	9	22	35	2	6
Professional Services (N = 148)	50	13	22	12	3	1

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Reasons for Not Acquiring A Computer

Small business owners who had not acquired computers at the time of the survey cited a number of principal reasons for not doing so. The most common reason, cited by 42 percent of respondents, was that they were too expensive (Table 10). Another 18 percent said they no time to make a decision. Fifteen percent said that there was nothing that fit their needs. The remaining respondents cited a number of other primary reasons for not acquiring computers, including no time to learn to use one, an intention to wait for a better computer, employee opposition, and a belief that it would be too disruptive to switch.

The primary reasons for not acquiring a computer varied by the amount of time that had been spent looking into the acquisition of computers. Small business owners who had spent considerable time investigating computers (more than 21 days), were more likely to report that computers were too expensive and less likely to report that they had no time to make the decision compared to other respondents.

Small business owners that presently do not have computers cited a number of changes that could cause them to purchase one. Some reasons concern finances. Two-fifths of all nonusers said that improved financial status

would cause them to reconsider acquiring a computer; one-quarter said that a price reduction in hardware or software would also cause them to reconsider (Table 11). Forty-four percent said that a better understanding of computers might cause them to acquire them. Other reasons

TABLE 10. Primary Reason for Not Purchasing a Computer By Time Spent Investigating Computers

(percent distribution)

Primary Reason	Time Spent Investigating Computers: Up to 1 Day	2–5 days	5–10 days	11–20 days	21+ days	All Firms
Nothing fits my needs	19	7	9	11	18	15
Too expensive	38	50	46	48	53	42
Too difficult	2	2	—	—	—	2
No time to make decision	18	17	20	22	11	18
Wait for better computer	2	5	5	11	4	3
No time to learn	7	5	3	—	—	6
Employee opposition	1	1	1	—	—	1
Too disruptive to switch	7	4	7	—	9	6
Other	7	8	9	7	4	7
(N)	(885)	(280)	(76)	(27)	(45)	(1313)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE 11. Changes that Would Likely Cause Firms To Acquire a Computer by Firm Size

(percent reporting change)

Causes to Acquire	Size of Firm (Number of FTE* employees): 1–4	5–9	10–19	20–49	All Firms
Improved hardware	3	7	6	7	5
Improved software	11	20	21	19	16
Price reduction in hardware	27	30	28	26	28
Price reduction in software	25	31	34	23	28
Change in current personnel	4	5	9	5	5
Change in financial status	47	38	35	23	41
Better support	5	7	11	16	7
Better understanding	43	47	40	45	44
Nothing	12	9	6	15	10
(N)	(758)	(436)	(159)	(62)	(1427)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

include improved hardware, improved software, and improved support services.

There were some differences in these reasons by size of firm. Smaller firms were more likely than larger firms to report that a change in financial status might cause them to acquire a computer. Larger firms were more likely than smaller firms to report that improved software or better support might cause them to acquire a computer.

Perceptions About Computers

Most small business owners believe computers are useful in businesses like theirs. More than one-half of survey respondents said that computers were very useful and another one-quarter said they were somewhat useful (Table 12). Only 9 percent said they were not useful and another 12 percent they were only marginally useful.

Views about the usefulness of computers differ widely between owners who have already acquired them and owners who have not. More than three-quarters of computer users think that computers are very useful in businesses like theirs, while only one-third of nonusers felt they were very useful. In contrast, 15 percent of nonusers felt that computers are not useful and other 18 percent felt they were only marginally useful. Among computer users, only 3 percent felt that computers were marginally or not useful.

The vast majority of small business owners who have acquired computers believe that computers are commonly used in businesses like theirs or will be commonly used soon (Table 13). Only a small percentage believe that computers are not likely to be used in the future (3 percent) or do not know (7 percent). The majority of small business owners who have not acquired machines also believe that computers are commonly used in businesses like theirs or

TABLE 12. Usefulness of Computers by Computer Status (percent distribution)

Usefulness	Firms With Computers	Firms Without Computers	All Firms
Very useful	81	31	52
Somewhat useful	17	36	28
Marginally useful	2	18	12
Not useful	1	15	9
Total	100	100	100
(N)	(1098)	(1561)	(2670)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

will be used soon. But one out of eight in this group believe they will not be used in the future. And one out of four in this group report that they do not know how commonly used computers are now or are likely to be in businesses like theirs.

Perceptions about computer use depend on the education level of the owner. Within each group—those who have computers and those who do not—owners with more education are more likely to report that computers are commonly used or will be used in businesses like theirs and less likely to report that they do not know about the use of computers in similar businesses. For instance, among small business owners without computers, 71 percent of the college graduates believe that computers are commonly used or will be used in similar firms compared to 52 percent of the high school graduates.

Information is a crucial element in making decisions about acquiring computers. Small business owners vary widely in how well informed they are about the uses of computers in the small business setting (Table 14). Among small business owners who have computers, about one-half report being very well or well informed, and only 13 percent report being not or not well informed. Among small businesses owners who have not acquired computers, these percentages are roughly reversed: only 12 percent report being well or very well informed about

TABLE 13. Perceptions of Computer Use in Similar Businesses By Education of Owner and Computer Status of Firm

(percent distribution)

	Education Level of Owner					
	Less than High School	High School	Some College	Bachelor Degree	Graduate Degree	All Firms
Firms with computers						
Commonly used	—	47	59	72	65	62
Will be used	—	33	31	22	27	27
Will not be used	—	5	3	2	4	3
Do not know	—	15	7	5	4	7
(N)	(17)	(179)	(324)	(396)	(136)	(1052)
Firms without computers						
Commonly used	17	22	24	33	28	25
Will be used	33	30	34	38	41	34
Will not be used	16	12	11	10	14	12
Do not know	34	36	31	19	17	29
(N)	(70)	(510)	(528)	(307)	(106)	(1521)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE 14. Perceptions of Being Informed about Computers By Education of Owner and Computer Status of Firm

(percent distribution)

	Education Level of Owner					
	Less than High School	High School	Some College	Bachelor Degree	Graduate Degree	All Firms
Firms with computers						
Very well informed	—	12	12	19	23	16
Well informed	—	22	31	37	34	32
Informed	—	40	45	36	36	40
Not well informed	—	25	11	7	6	12
Not informed	—	2	—	—	1	1
(N)	(17)	(179)	(324)	(400)	(138)	(1058)
Firms without computers						
Very well informed	—	1	2	3	7	2
Well informed	—	6	9	16	14	10
Informed	—	22	33	39	35	30
Not well informed	—	52	48	35	38	46
Not informed	—	18	9	7	7	12
(N)	(70)	(515)	(531)	(309)	(106)	(1531)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

computers, and more than half report that they are not or not well informed.

These views also vary by education level. Within both groups—owners who have computers and those who do not—the more educated are more likely to report being well informed and less likely to report being uninformed. For example, among owners with computers, 56 percent of the college graduates reported being well informed compared to 34 percent of the high school graduates. Among owners who do not have computers, 42 percent of the college graduates report being uninformed compared to 70 percent of the high school graduates.

Sources of Information

Small business owners rely on several sources of information to learn about computers (Table 15). Business associates are the most widely cited source among owners who have computers as well as among owners who do not. About half of small business owners with computers also rely on computer sales representatives and business or computer magazines. Other important sources include trade shows, computer courses, employees, outside consultants, and friends or relatives. Nonusers tend to follow these same patterns, except they rely on these sources less

TABLE 15. Sources of Information on Computers by User Status

Information Sources	Percent Using Source		Most Helpful Source (percent distribution)	
	Firms With Computers	Firms Without Computers	Firms With Computers	Firms Without Computers
Business Associates	66	51	24	31
Computer sales representatives	51	27	19	10
Business or computer magazines	47	32	11	14
Trade shows	27	16	4	6
Courses	39	17	14	10
Employees	18	8	4	2
Outside consultants	25	9	12	5
Friends or relatives	23	38	8	19
Other sources	9	6	5	3
Total			100	100
(N)	(1100)	(1597)	(1100)	(1597)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

often, which reinforces the earlier findings that nonusers are generally less informed about computers. The major difference is that nonusers are more likely to rely on friends or relatives than computer users.

There was no consensus among either users or nonusers about the single most helpful source of information about computers. Business associates were cited as the most helpful source of information for both groups, especially nonusers. Among computer users, the next most helpful source of information was computer sales representatives, followed by computer courses and outside consultants. Among nonusers, the next most helpful sources were friends or relatives, business or computer magazines, courses and computer sales representatives.

Time Spent Investigating Computers

The amount of time that small business owners and their employees have spent looking into acquiring a computer varies widely (Table 16). Among computer users, 20 percent spend 2 to 5 days, 20 percent spend 5 to 10 days, 13 percent spend 11 to 20 days, and 40 percent spent more than 21 days.

As we pointed out earlier, the majority of firms without computers have not considered acquiring one. But most of those firms have spent less time looking into the matter

TABLE 16. Time Spent Investigating the Purchase of Computers by User Status

(percent distribution)

	Firms With Computers	Firms Without Computers	
Amount of Time		**Have Investigated**	**Have Not Investigated**
Up to 1 day	7	28	83
2 to 5 days	20	43	12
5 to 10 days	20	14	3
11 to 20 days	13	5	1
More than 21 days	40	10	1
Total	100	100	100
(N)	(1081)	(471)	(1040)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

than firms who have already acquired them. Most nonusers, in fact, have spent 5 days or less looking into the acquisition of a computer, compared to less than 30 percent of firms that have acquired computers.

Chapter 4

Skills and Training

In order to use computers effectively in any business setting, employees must be trained to operate them. Success in training depends on the availability of those skills and attributes that are required to most easily learn to use the computer. There is a considerable amount of disagreement in the popular press and research literature about what employee characteristics are most important in learning to use the computer. Some people believe that since a computer represents a sophisticated and technologically advanced product, individuals should require high level, technical skills and advanced training in order to use it on the job.[5] Others believe that a computer simply represents another device, along with photocopiers and telephones, that are part of any business and, therefore, should not require higher technical and specialized skills.[6]

Ease of Use

In order to get a general idea about the skills and training a computer requires in the small business setting, computer users were asked to indicate how difficult it is to learn to use the computer. The majority of respondents indicated that it was very easy or somewhat easy to learn to use the computer (Table 17). Another quarter indicated that a computer presented an average degree of difficulty. Only about one out of five said it was somewhat or very difficult to learn to use.

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[5] Many of the recent national reports on educational reform call for increasing technical skills in preparation for a more technically sophisticated society. See, for example, the Task Force on Education for Economic Growth, *Action for Excellence* (Denver: Education Commission of the States, May 1983).

[6] One recent study found that most workers who use computers require little or no specialized training. See the National Commission for Employment Policy, *Computers in the Workplace* (Washington, D.C.: National Commission for Employment Policy, March 1986).

TABLE 17. Ease of Learning to Use Computers and Reasons Found Difficult

All firms with computers (N = 1059)

Ease of learning to use	Percent Distribution
Very easy	20
Somewhat easy	35
Average	26
Somewhat difficult	17
Very difficult	2

Firms that found it difficult (N = 204)

Reasons found difficult	Percent Indicating Reasons
Poor manuals	56
Inadequate training	50
Too complicated	32
Other	19

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Respondents who thought it was difficult to learn to use were also asked the reasons it was difficult. The most common reasons, cited by half of the respondents, were poor manuals and inadequate training. One-third said it was too complicated and 19 percent cited other reasons. Even among those who thought the computer was difficult to use, a majority might have found it easier to use with proper training and manuals.

Important Worker Attributes

Computer users were also asked about the importance of specific employee attributes and characteristics in learning to use the computer. In general, employers placed greater emphasis on attitudes and basic skills than technical skills or a computer background (Table 18). More specifically, a majority of respondents indicated that the following characteristics were very important in learning to use the computer: interest and enthusiasm, reading and comprehension skills, and reasoning skills. Less than 50 percent of the respondents thought that the following skills were very important: formal computer training, math skills, application skills, and prior computer experience.

Of all the characteristics listed, more than 50 percent of all respondents indicated that interest and enthusiasm was the most important characteristic in learning to use the computer. There was less agreement on the second most important characteristic: 27 percent indicated reading and

TABLE 18. Important Characteristics for Learning to Use the Computer

Characteristics	Relative Importance			Most Important	Second Most Important
	Very	Somewhat	Not	(percent distribution)	
Interest and enthusiasm	78	19	2	55	18
Reading/comprehension skills	67	31	2	19	27
Reasoning skills	56	40	3	11	26
Application skills	32	59	9	7	15
Formal computer training	16	41	43	6	8
Math skills	16	55	29	0	2
Prior computer experience	8	39	53	2	4
Total				100	100
(N = 1058)					

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

comprehension skills, 26 percent reasoning skills, 16 percent interest and enthusiasm, and 15 percent application skills.

In order to obtain additional insight into the education and training requirements associated with using a computer, respondents were asked a hypothetical question: If they had to hire a new employee to do the accounts payable, accounts receivable, and the payroll for their firm, would they hire a bookkeeper or someone to perform these tasks on the computer using standard computer packages? Respondents were also asked the reasons for hiring one type of person over the other.

A large majority of the respondents, 79 percent, indicated that they would hire someone to perform these tasks on the computer, while only 21 percent said they would hire a bookkeeper (Table 19). Interestingly, the reasons for choosing one person over the other were quite similar. In both cases, the most frequently cited reason was that the person could do a better job: 70 percent of the respondents who would hire a person to use the computer cited that reason, while 50 percent of the respondents who would hire a bookkeeper cited it. A sizable number of respondents in each group also thought their choice would require less formal education, less previous training, or less on-the-job training. These findings support the previous observations that employees using computers in small business appear to require no more formal training and experience than employees performing similar tasks without the use of computers.

TABLE 19. Choosing Between Bookkeeper and Computer Operator To Handle Financial Work and Reasons for Choosing

	Bookkeeper	Computer Operator
Choices (N = 1045) (percent distribution)	21	79
Reasons for choosing (percent indicating reason)		
Requires less formal education	18	23
Requires less previous training	17	27
Requires less on-the-job training	41	28
Requires lower salary	10	14
Able to do a better job	50	70
Other	19	11

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Training

Computer users were finally asked a series of questions of how people in their firms were trained to use the computers. About half of all respondents indicated that on-site training was the *primary* means of learning to use computers in their firms (Table 20). Another 25 percent said that manuals were the primary means, 19 percent relied on off-site training, 7 percent used tutorial software, and 5 percent relied on other means.

The primary means of learning to use computers varied by firm size. Larger firms were more likely to rely on on-site training and less likely to rely on manuals. Small firms, in contrast, were more likely to rely on manuals and less likely to rely on on-site training.

Among those who used formal on-site or off-site training, vendors supplied about three-quarters of the training and outside consultants supplied the other one-quarter. Larger firms were more likely to have the training provided by the vendor, while smaller firms were more likely to rely on outside consultants. Since larger firms usually spend more on computer equipment than smaller firms, they are probably more likely to have training supplied along with the equipment.

An average of 30 hours of training was provided to all firms who had received formal training. The average amount of training provided varied from 18 hours in the smallest firms to 38 hours in the largest ones. In about 75 percent of the cases, the training was included in the price of the computer. In those cases where the training was not provided in the price of the computer, firms paid an average of over $1500 for the training.

TABLE 20. Training Activities by Size of Firm

	Size of Firm (Number of FTE* employees)						
	1–4	5–9	10–19	20–49	50–99	100+	All Firms
All firms with computers							
Primary means of learning to use computer (percent distribution)							
Off-site training	19	19	14	23	24	19	19
On-site training	29	44	50	53	61	57	45
Tutorial software	9	6	7	5	8	5	7
Manuals	38	24	24	16	6	16	25
Other	5	7	5	3	2	3	5
(N)	(216)	(239)	(155)	(156)	(51)	(37)	(854)
Firms who had formal training							
Who supplied training (percent distribution)							
Vendor	58	69	82	79	79	74	73
Outside consultant	42	31	18	21	21	26	27
(N)	(101)	(140)	(96)	(116)	(42)	(27)	(522)
Average hours supplied	18	28	30	38	34	38	30
(N)	(82)	(125)	(86)	(100)	(28)	(21)	(442)
Training included in price (percent distribution)							
No	29	23	19	26	28	22	25
Yes	71	77	81	73	72	78	75
(N)	(101)	(145)	(97)	(118)	(43)	(27)	(531)
Firms who paid for training							
Average cost	—	—	—	—	—	—	$1587
(N)							(63)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Chapter 5

Impacts

Perceived Benefits

Small business owners who had acquired computers were asked to indicate what benefits they have experienced from using computers. A majority of users reported several major benefits. About two-thirds of all users perceived four benefits from using computers: improved productivity, easier work, improved quality of work, and improved information about the business (Table 21). In addition, between one-third and one-half mentioned reduced labor costs, more enjoyable work, and improved organization of the business.

There was no agreement as to the most important benefit from using computers: 24 percent said the most important benefit was improved productivity; 22 percent cited improved work quality; and 31 percent reported that computers improved information about the business. The remaining respondents selected one of the other benefits.

There was some variation in responses by size of firm. Larger firms were more likely than smaller firms to report that computers improved productivity, reduced labor costs, improved the quality of work, and improved information about the business. Larger firms were also more likely than smaller firms to report that the most important benefit from using computers was improved information about the business and less likely to report improved work quality.

The actual benefits from using computers correspond very well with the initial reasons users indicated for acquiring computers in the first place (Table 9).[7] For instance, of those users who said that the primary reason they acquired computers was to increase productivity, 85 percent said that computers had improved productivity of their workers (Table 22). Among users whose primary reason for acquiring a computer was to improve the quality of work per-

[7] Although respondents could have rationalized their reasons for initially acquiring a computer after they acquired it.

TABLE 21. Perceived Benefits from Using Computers by Size of Firm

	Size of Firm (Number of FTE* employees)						All Firms
	1–4	5–9	10–19	20–49	50–99	100+	
Percent Seeing Benefit							
Improves productivity	52	59	63	71	73	93	62
Reduces labor costs	37	37	39	42	52	63	40
Makes work easier	63	60	60	63	55	65	61
Makes work more enjoyable	34	37	37	28	32	40	34
Improves quality of work	68	64	74	73	72	83	69
Improves information about business	59	64	69	82	77	95	69
Improves organization of business	45	44	49	49	40	50	46
Other	7	7	5	3	5	—	6
(N)	(266)	(288)	(188)	(178)	(60)	(40)	(1020)
Most Important Benefit (percent distribution)							
Improves productivity	23	23	24	26	28	28	24
Reduces labor costs	7	4	6	5	5	5	5
Makes work easier	13	9	6	5	4	5	8
Makes work more enjoyable	1	1	—	—	—	—	1
Improves quality of work	24	21	26	20	18	13	22
Improves information about business	23	32	30	37	33	46	31
Improves organization of business	6	8	7	6	9	3	7
Other	4	3	2	1	4	—	3
(N)	(239)	(252)	(164)	(157)	(57)	(39)	(908)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

formed, 86 percent indicated that the quality of work had improved. And among users whose primary reason for acquiring computers was to have better information about the firm, 85 percent thought that computers had improved the information about the business. The lowest correspondence came from users whose primary reason for acquiring computers was to reduce costs, with only about 50 percent reporting reduced costs.

Another benefit from using computers is savings in time, which also improves the productivity of workers in small businesses. Three out of four computer users reported savings in time, and some users reported substantial savings in time. More specifically, 31 percent of all computer users indicated savings between 10 and 25 percent, 25 percent

TABLE 22. Reasons for Acquiring Computer by Perceived Benefits

(percent who cited reason)

	Perceived Benefit			
	Improves Productivity	Reduces Labor Costs	Improves Work Quality	Improves Information
All firms (N = 1019)	62	40	70	69
Primary Reason for Acquiring a Computer:				
To increase productivity (N = 342)	85	52	57	50
To reduce costs (N = 99)	45	56	36	32
To improve work quality (N = 166)	73	71	86	60
To have better information (N = 328)	61	64	63	85

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

of users indicated savings between 25 and 50 percent, and 14 percent of users indicated savings between 50 and 100 percent (Table 23). Only 8 percent of users reported that computers have increased the amount of time required to perform their work, while 17 percent reported no change. Owners of larger firms were even more likely to report savings in time than owners of smaller firms.

TABLE 23. Amount of Time Saved by Computers by Size of Firm

(percent distribution)

	Size of Firm (Number of FTE* Employees)						
Amount of Time	**1–4**	**5–9**	**10–19**	**20–49**	**50–99**	**100+**	**Total**
Increased amount of time	6	12	8	7	5	5	8
No change	20	19	16	14	8	5	17
Decreased amount of time by:							
0–10%	6	7	4	5	5	5	5
10–25%	26	29	37	35	31	24	31
25–50%	27	20	21	28	31	37	25
50–100%	15	13	14	11	20	24	14
(N)	(251)	(279)	(175)	(170)	(59)	(38)	(972)

*Full Time Equivalent

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Problems

Despite the benefits from using computers, small businesses have encountered problems with using them. The most widespread problem is that computers have been more time consuming that expected, a situation reported by more than half of all computer users (Table 24). Thus even though users report that computers generally save time, for many they are more time consuming than expected. The latter experience could simply reflect the amount of time needed to learn and master the system.

Other problems were also reported. One-quarter of all users reported problems with vendor support. Others included more difficulty in using the computer than expected, more costly than expected, and less reliable than expected. Half of all users indicated that time consumption was the most important problem, while another 20 percent reported than inadequate vendor support was the most important problem.

Some computer users also reported that they had encountered problems with the hardware and software over the last year (Table 25). About one-quarter of computer users indicated that they had problems with their hardware over the last year. A quarter of all users also noted that they had problems with the software over the last year. In most instances, problems were encountered only one or two times, although almost one-third of users who reported software problems indicated that they had 5 or more instances of problems with their software.

TABLE 24. Problems Encountered with Computers

Problem	Percent Reporting Problem	Most Important Problem (Percent distribution)
More time consuming than expected	57	48
More difficult to use than expected	18	8
More costly than expected	19	7
Less reliable than expected	8	3
Inadequate vendor support	27	20
Other	13	13
Total		100
(N = 1100)		

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Satisfaction

In general, computer users felt that they were quite satisfied with computers in their firms. More than half of all users were very satisfied and another third were moderately satisfied (Table 26). Less than 10 percent of users reported being dissatisfied.

We also asked computer users whether they would change anything about their decisions to acquire computers if they could redo them. Almost half of all users reported that they would not change anything (Table 27). About one out of every five users said they would purchase different hardware or different software. Less than 10 percent said they would spend more time in making their decision.

TABLE 25. Problems with Hardware or Software Over Last Year

	Hardware	Software
Percent reporting problem	22	25
(N = 1100)		
Number of times problem encountered:	Percent distribution	
1	45	23
2	25	20
3	11	15
4	6	11
5 or more	13	31
Total	100	100
(N)	(231)	(238)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE 26. Overall Level of Satisfaction with Computers (percent distribution)

Satisfaction	
Very satisfied	54
Moderately satisfied	32
Neither	7
Somewhat dissatisfied	5
Very dissatisfied	2
Total	100
(N)	(1064)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE 27. Changes Users Would Make If They Could Redo Their Decisions

(percent indicating change)

Changes	
Wouldn't change anything	45
Purchase different hardware	20
Purchase different software	21
Spend more time before making a decision	9
Not purchase the computer at all	—
Other	5

(N = 1100)

Source: Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

Chapter 6

Summary and Conclusions

Computer use in small businesses is fairly widespread. By the fall of 1985, 40 percent of all small businesses owned computers. Larger firms were more likely to have computers than smaller firms. Most firms with computers have acquired them only in the last few years. The brand of computer equipment varies widely in small businesses. Less than one-third of all small businesses with computers have IBM computers, while the next most common brands—Radio Shack and Apple—are found in only about 13 percent of firms.

Total expenditures on computers by small businesses are sizeable: the average expenditure on computer hardware is about $25,000 and the average expenditure on computer software is about $10,000. This represents a total investment of more than $33 billion by the small business sector.

Small businesses use computers to perform a wide variety of office functions. The most common uses are for word processing and accounting. Having a computer reduces the need for outside contractors to perform such tasks as tax preparation and mailing lists.

The primary reasons for small businesses to acquire computers are to improve the productivity of their workers, to improve the quality of the work performed, and to improve the information about the firm. The most important reason for small businesses not acquiring computers at this time has to with their costs and the financial condition of the firm. Most small businesses without computers are likely to acquire them if computers become more inexpensive (which they are becoming) or if the financial position of their firms improve. Small business owners who have acquired computers for their firms believe computers are more useful in small businesses and are better informed about computers than small business owners who have

not acquired computers. Computer users have also spent more time looking into acquiring computers than small businesses that have not acquired computers but who have looked into the matter.

Training does not represent a major obstacle for using computers in small businesses. The majority of small business owners who have computers believe they are easy to use. The most important employee characteristics in learning to use computers are interest and enthusiasm and basic reading, comprehension, and reasoning skills. These are the same qualities that employers desire in their employees more generally.[8] The majority of small businesses rely on formal training to use the computer, either on-site or off-site, with most of this training supplied by the vendors that supplied the computers to the firm.

Small businesses that have acquired computers report a wide range of benefits from using them. The primary benefits are increased productivity, improved work quality, and better information about the business. Many businesses also report substantial savings in time. Yet computer users also report that they have had problems with computers. More than half of all users report that computers have been more time consuming than expected, while about one-quarter report having had problems with their hardware or software over the last year. Nonetheless, most computer users report being satisfied with their computers and would not change anything if they could redo their decision.

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[8] See, for example, Wellford W. Wilms, "Vocational Education and Job Success: The Employers View," *Phi Delta Kappan*, vol. 65 (January 1984).

Appendices

Appendix A: Survey Sample

This report was based on data gathered from a mail survey of small business owners who were members of the National Federation of Independent Business (NFIB). The survey sample was drawn from a random sample of the regular NFIB membership excluding members who had no full-time employees. A total of 10,140 members were sent questionnaires and 2813 returned usable questionnaires, for a response rate of 28 percent.

In order to generalize the results of this survey to the population of small businesses in the United States, one must know how representative the sample of respondents is of the NFIB membership and how representative the NFIB membership is of the population of small businesses in the United States. These questions have been investigated for ongoing quarterly surveys of the NFIB membership that yield similar response rates. The investigation concluded that these surveys provided information that was representative of the entire NFIB membership and that the NFIB membership was representative of the population of small businesses in the United States.[9] To elaborate, the membership of the NFIB is representative of the population of small businesses when defined as enterprises employing 500 or fewer employees.[10]

A similar case can be made for the present survey by comparing information on the population of small businesses in the United States from the Small Business Data Base (SBDB) of the U.S. Small Business Administration with information on the NFIB membership and the survey respondents. In Appendix Table A.1 these three groups are compared on two dimensions: size of firm and industry.

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[9] William C. Dunkelberg and Jonathan A. Scott, "Report on the Representativeness of the National Federation of Independent Business Sample of Small Firms in the United States" (Washington, D.C.: U.S. Small Business Administration, 1984), mimeo.

[10] U.S. Small Business Administration, *The Annual Report on Small Business and Competition* (Washington, D.C.: U.S. Government Printing Office, March 1984), p. 7.

These comparisons show that all three groups appear to be quite similar on these two dimensions. There are negligible differences by industry. The biggest differences occur in size of firm. Both the NFIB membership and the survey respondents show smaller proportions of the smallest firms in the population (those with 1 to 9 employees) and somewhat larger proportions of larger firms (those with 20 to 99 employees).

As with any survey, there are errors in the reported percentages due to sampling variability. That is, we can expect the percent distributions reported for the survey respondents to differ from the percent distributions for the population of small businesses. The standard errors reported below can be used to construct a confidence interval for the reported percentages. The size of the standard error depends both on the estimated percentage and the size of the sample upon which it is based. With a 95 percent certainty, we can expect that the actual percentage for the population falls within each confidence interval, which is simply the estimated percentage plus or minus the standard error. For example, the confidence interval for an estimated percentage of 50, based on a sample size of 500, is 46 to 54. That is, we can expect with 95 percent certainty, that the population percentage lies within the interval from 46 to 54.

TABLE A.1. Small-Business Universe, NFIB Membership, and Survey Respondents by Size of Firm and Industry

(percent distribution)

	Small Business Population[1]	NFIB Membership[2]	Survey Respondents[3]
Size of Firm (Number of FTE employees)			
1–4	57	70	37
5–9	21		27
10–19	11	15	13
20–49	7	13	9
50–99	2		3
100 +	2	1	1
No reply	—	1	10
Total	100	100	100
Industry			
Construction	14	11	11
Manufacturing and Mining	9	13	12
Transportation, Communications, & Public Utilities	4	3	2
Wholesale trade	10	7	7
Retail	29	27	30
Agriculture, Forestry, Fishing	3	6	5
Finance, Insurance and Real Estate	8	7	7
Services	23	24	24
No reply	—	2	2
Total	100	100	100

Sources: [1]U.S. Small Business Administration, *The State of Small Business* (Washington, D.C.: U.S. Government Printing Office, 1982 and 1984), Tables B.2 and 1.3; [2]National Federation of Independent Business, unpublished tabulations of membership, June 1985; [3]Tabulations from the IFG/NFIB Survey of Computers in Small Businesses, October 1985. Total sample size is 2,813.

TABLE A.2. Standard Error for Estimated Percentages

Estimated Percentage	50	100	250	500	1000	1500	2500
2 or 98	4	3	2	1	1	1	1
5 or 95	6	4	3	2	1	1	1
10 or 90	8	6	4	3	2	2	1
15 or 85	10	7	5	3	2	2	1
20 or 80	11	8	5	4	3	2	2
25 or 75	12	9	5	4	3	2	2
30 or 70	13	9	6	4	3	2	2
35 or 65	13	10	6	4	3	2	2
50	14	10	6	4	3	3	2

Appendix B:
Survey Questionnaire

COMPUTERS IN SMALL BUSINESSES:

COSTS AND BENEFITS

Many businesses, both large and small, are now facing decisions about using computers to improve the performance of their firms. As an independent business owner, your experiences with computers could provide valuable information for other business owners on the costs and benefits of computers in small business. This survey will help provide that information.

Please answer all of the questions that apply. If you wish to comment on any questions or qualify your answers, please feel free to use the space in the margins. There is also space for additional comments on the back of the survey. Your comments will be read and taken into account.

Thank you for your help.

National Federation of Independent Business
Research and Education Foundation
600 Maryland Avenue, SW
Washington, DC 20024

Q-1 Which best describes your view of computers in businesses like yours? (Circle number of your answer.)

1 VERY USEFUL
2 SOMEWHAT USEFUL 1
3 MARGINALLY USEFUL
4 NOT VERY USEFUL

Q-2 Are computers commonly used in businesses like yours? (Circle number.)

1 COMMONLY USED
2 NOT COMMONLY USED NOW, BUT SOON WILL BE 2
3 NOT COMMONLY USED AND NOT LIKELY TO BE
4 DON'T KNOW

Q-3 How well informed are you about the uses of computers in the small business setting? (Circle number.)

1 VERY WELL INFORMED
2 WELL INFORMED 3
3 INFORMED
4 NOT WELL INFORMED
5 NOT INFORMED

Q-4 From what sources have you learned about uses or possible uses of computers in your business? (Circle all numbers that apply.)

1 BUSINESS ASSOCIATES 4
2 COMPUTER SALES REPRESENTATIVE 5
3 BUSINESS OR COMPUTER MAGAZINES 6
4 TRADE SHOWS 7
5 SEMINARS OR COURSES 8
6 EMPLOYEE(S) 9
7 OUTSIDE CONSULTANT 10
8 FRIEND OR RELATIVE 11
9 OTHER (Specify): _____ 12

Q-5 What source of information has proved most helpful? (Circle one number only.)

1 BUSINESS ASSOCIATES
2 COMPUTER SALES REPRESENTATIVE 13
3 BUSINESS OR COMPUTER MAGAZINES
4 TRADE SHOWS
5 SEMINARS OR COURSES
6 EMPLOYEE(S)
7 OUTSIDE CONSULTANT
8 FRIEND OR RELATIVE
9 OTHER (specify): _____

Q-6 Has your business ever investigated buying or leasing a computer of its own, as opposed to leasing time on a computer outside of the firm? (Circle number)

1 NO 14
2 YES

Q-7 How much time did you or any of your designated employees spend looking into the possibility of acquiring a computer for your business, including time spent visiting trade shows, talking with vendors, and reading material on computers? (Circle number; if none, circle "1.")

1 UP TO ONE DAY
2 FROM 2 TO 5 DAYS
3 FROM 5 TO 10 DAYS
4 FROM 11 TO 20 DAYS
5 MORE THAN 21 DAYS

15

Q-8 Has your business ever bought or leased a computer of its own? (Circle number.)

1 YES → If yes, skip from here to Q-11 on page 3.
2 NO

If no, continue.

16

Q-9 What was the primary reason for not acquiring a computer? (Circle one number only.)

1 NOTHING FITS MY NEEDS
2 TOO EXPENSIVE
3 TOO DIFFICULT TO USE
4 DIDN'T HAVE THE TIME TO MAKE A CAREFUL DECISION
5 WANTED TO WAIT FOR MORE ADVANCED COMPUTERS
6 COULDN'T SPARE ANY TIME TO LEARN TO USE IT
7 EMPLOYEE OPPOSITION
8 TOO DISRUPTIVE TO SWITCH TO COMPUTER
9 OTHER (specify): _____

17

Q-10 What changes would likely cause you to acquire one? (Circle all numbers that apply.)

1 IMPROVED HARDWARE
2 IMPROVED SOFTWARE
3 MAJOR PRICE REDUCTION IN HARDWARE
4 MAJOR PRICE REDUCTION IN SOFTWARE
5 CHANGE IN CURRENT PERSONNEL WITHIN YOUR FIRM
6 IMPROVED FINANCIAL SITUATION WITHIN YOUR FIRM
7 BETTER SUPPORT SERVICES PROVIDED
8 BETTER UNDERSTANDING OF HOW THEY COULD HELP ME
9 NOTHING
10 OTHER (specify): _____

18-27

Skip from here to Q-41 on page 8.

Q-11 In what year did you first acquire a computer? (Indicate year.)

19____ 28-29

Q-12 What was the primary reason for acquiring a computer? (Circle one number only.)

1 INCREASE PRODUCTIVITY WITH EXISTING PERSONNEL
2 REDUCE COSTS OF LABOR OR OUTSIDE SERVICES
3 IMPROVE QUALITY OF WORK PERFORMED 30
4 HAVE BETTER INFORMATION ABOUT THE BUSINESS
5 KEEP UP WITH OTHER FIRMS IN MY INDUSTRY
6 OTHER (specify): _____

Q-13 Please identify the number and type of each kind of computer system in your business and, in the case of multi-user systems, the number of terminals or workstations associated with each system.

	Computer Brand and Model		Quantity		Number of Terminals	
Computer Equipment:						
Example 1	IBM PC/XT		1			
Example 2	Altos 68000		1		6	
1	_____	31	_____	32	_____	33-34
2	_____	35	_____	36	_____	37-38
3	_____	39	_____	40	_____	41-42
4	_____	43	_____	44	_____	45-46

Q-14 About how much have you spent for all the equipment and software you presently have in your business and for any monthly lease, loan, or service contract you are presently paying? (If software was included in price of hardware, please estimate value of software included and reduce hardware price accordingly.)

	Total Purchase Price	Monthly Lease or Loan	Annual Service Contract
Hardware	$_____ 47-50	$_____ 51-54	$_____ 55-58
Software	$_____ 59-62	$_____ 63-66	$_____ 67-70

Although computers can be used to perform production tasks, in the remainder of this survey we wish to ask about the use of computers to perform office tasks.

Q-15 What office software do you presently use in your business? (Circle all letters that apply.)

A WORD PROCESSING
B ELECTRONIC FILING
C FINANCIAL SPREADSHEETS
D DATA BASE MANAGEMENT
E ACCOUNTING (ACCOUNTS PAYABLE, ACCOUNTS RECEIVABLE, GENERAL LEDGER)
F PAYROLL
G BILLING
H MAILING LISTS
I INVENTORY
J STATISTICAL ANALYSIS
K COMMUNICATIONS
L SCHEDULING
M OTHER (specify): _____ 71-83

Q-16 What was the primary means that you or your employees first used to learn to operate your computer(s)? (Circle one number only.)

1 OFF-SITE TRAINING
2 ON-SITE TRAINING
3 TUTORIAL SOFTWARE
4 MANUALS
5 OTHER (specify): _____ 84

→ Skip from here to Q-20 below.

Q-17 Who supplied this training? (Circle number.)

1 VENDOR WHO SOLD THE COMPUTER
2 OTHER FIRM OR INDEPENDENT CONSULTANT 85

Q-18 Was the training included in the price of the computer? (Circle number.)

1 NO . . . . 86 How much did it cost? $_____ 87-90
2 YES

Q-19 How many hours of training were provided?

_____ hours 91-92

Q-20 Do you personally use the firm's computer equipment? (Circle number.)

1 NO
2 YES 93

Q-21 How many employees, excluding yourself, presently use the computer(s)?

_____ employees 94-96

Q-22 How easy is it to learn to use the computer(s)? (Circle number)

1 VERY EASY
2 SOMEWHAT EASY
3 NOT REALLY EASY OR DIFFICULT 97
4 SOMEWHAT DIFFICULT
5 VERY DIFFICULT

Q-23 Why? (Circle all numbers that apply)

1 POOR MANUALS
2 INADEQUATE TRAINING 98-101
3 TOO COMPLICATED
4 OTHER (specify):_____

Q-24 How important are each of the following characteristics in learning to use your firm's computer(s) to perform routine applications?

		How important? (Circle correct answer)			
1	Interest and enthusiasm	VERY	SOMEWHAT	NOT	102
2	Formal computer training	VERY	SOMEWHAT	NOT	103
3	Basic reading and comprehension skills	VERY	SOMEWHAT	NOT	104
4	Reasoning skills	VERY	SOMEWHAT	NOT	105
5	Basic mathematical skills	VERY	SOMEWHAT	NOT	106
6	Application skills (e.g. bookkeeping, typing)	VERY	SOMEWHAT	NOT	107
7	Prior computer experience	VERY	SOMEWHAT	NOT	108

Q-25 Which of the above characteristics do you consider to be the most important for learning to use a computer? (Put a number of item in appropriate box)

☐ MOST IMPORTANT 1

☐ SECOND MOST IMPORTANT 2

Q-26 Have computers changed the amount of time it takes your employees to accomplish the same amount of work as before you had computers? (Circle number)

1 NO CHANGE
2 INCREASED THE AMOUNT OF TIME 3
3 DECREASED THE AMOUNT OF TIME

Q-27 How much more or less? (Circle number)

1 0-10%
2 10-25%
3 25-50% 4
4 50-100%

Suppose you must hire a new employee to handle your accounts payable, accounts receiveable, and payroll. You can either hire a bookkeeper to perform these tasks in a traditional way without a computer, or you can hire someone to perform these tasks using your computer and standard computer packages.

Q-28 Which person would you hire? (Circle number)

1 TRADITIONAL BOOKKEEPER
2 PERSON TO USE A COMPUTER 5

Q-29 Why? (Circle all numbers that apply)

1 REQUIRES LESS FORMAL EDUCATION
2 REQUIRES LESS PREVIOUS TRAINING
3 REQUIRES LESS ON-THE-JOB TRAINING 6-11
4 CAN PAY LOWER SALARY
5 CAN DO A BETTER JOB
6 OTHER (specify):_____

Q-30 How many hours per day is the computer used in your business?

_____ hours 12-13

Q-31 Have you had any major problems with the hardware over the last year? (Circle number)

1 NO
2 YES . . . . . 14 How many times? _____ times 15-16

Q-32 Have you had any major problems with the software of the last year? (Circle number)

1 NO
2 YES . . . . . 17 How many times? _____ times 18-19

Q-33 How satisfied have you been with your computer(s)? (Circle number)

1 VERY SATISFIED
2 MODERATELY SATISFIED
3 NOT PARTICULARLY SATISFIED OR DISSATISFIED 20
4 SOMEWHAT DISSATISFIED
5 VERY DISSATISFIED

Q-34 If you could redo the decision, what would you change? (Circle all numbers that apply)

1 WOULDN'T CHANGE ANYTHING
2 PURCHASE DIFFERENT HARDWARE 21-26
3 PURCHASE DIFFERENT SOFTWARE
4 SPEND MORE TIME BEFORE MAKING A DECISION
5 NOT PURCHASE THE COMPUTER AT ALL
6 OTHER (specify):_____

Q-35 What benefits do you see from having purchased a computer? (Circle all numbers that apply)

1 INCREASES WORK VOLUME WITH EXISTING PERSONNEL
2 REDUCES LABOR COSTS FOR SAME WORK VOLUME
3 MAKES WORK EASIER
4 MAKES WORK MORE ENJOYABLE
5 IMPROVES QUALITY OF WORK PERFORMED
6 IMPROVES INFORMATION ABOUT THE BUSINESS
7 IMPROVED ORGANIZATION OF THE BUSINESS
8 OTHER (specify):_____

27-34

Q-36 What is the most important benefit from having purchased a computer for your business? (Circle one number only)

1 INCREASES WORK VOLUME WITH EXISTING PERSONNEL
2 REDUCES LABOR COSTS FOR SAME WORK VOLUME
3 MAKES WORK EASIER
4 MAKES WORK MORE ENJOYABLE
5 IMPROVES QUALITY OF WORK PERFORMED
6 IMPROVES INFORMATION ABOUT THE BUSINESS
7 IMPROVED ORGANIZATION OF THE BUSINESS
8 OTHER (specify):_____

35

Q-37 What problems or difficulties have you encountered with your computers(s)? (Circle all numbers that apply)

1 MORE TIME CONSUMING TO IMPLEMENT THAN EXPECTED
2 MORE DIFFICULT TO USE THAN EXPECTED
3 MORE COSTLY THAN EXPECTED
4 LESS RELIABLE THAN EXPECTED
5 INADEQUATE VENDOR SUPPORT
6 OTHER (specify):_____

36-41

Q-38 What is the most important problem or difficulty you have encountered with your computer(s)? (Circle one number only)

1 MORE TIME CONSUMING TO IMPLEMENT THAN EXPECTED
2 MORE DIFFICULT TO USE THAN EXPECTED
3 MORE COSTLY THAN EXPECTED
4 LESS RELIABLE THAN EXPECTED
5 INADEQUATE VENDOR SUPPORT
6 OTHER (specify):_____

42

Q-39 Do you plan on purchasing additional hardware in the next year? (Circle number)

1 NO
2 YES

43

Q-40 If "yes", how many additional computers or terminals do you plan to acquire?

_____ or _____ Undecided

44-45

Another important purpose of this survey is to find out about the ways and costs of running your business.

Q-41 How does your business handle each of the following tasks?

	ON A COMPUTER	MANUALLY	OUTSIDE CONTRACTOR	NOT APPLICABLE	
	(Circle correct number)				
Accounts payable	1	2	3	4	46
Accounts receivable	1	2	3	4	47
Billing	1	2	3	4	48
Mailing lists	1	2	3	4	49
Estimating	1	2	3	4	50
Inventory	1	2	3	4	51
Payroll	1	2	3	4	52
Taxes: quarterly	1	2	3	4	53
Taxes: yearly	1	2	3	4	54

Q-42 If you pay contractors to perform any of these tasks for you, how much do you spend per month for these services?

ACCOUNTS PAYABLE	$_____	per month	55-57
ACCOUNTS RECEIVABLE	$_____	per month	58-60
BILLING	$_____	per month	61-63
CUSTOMER MAILING LISTS	$_____	per month	64-66
ESTIMATING	$_____	per month	67-69
INVENTORY	$_____	per month	70-72
PAYROLL	$_____	per month	73-75
TAXES: QUARTERLY	$_____	per month	76-78
TAXES: YEARLY	$_____	per month	79-81

Q-43 Approximately how many hours per month does your business spend on each of these tasks?

ACCOUNTS PAYABLE	_____	hours/month	82-84
ACCOUNTS RECEIVABLE	_____	hours/month	85-87
BILLING	_____	hours/month	88-90
CUSTOMER MAILING LISTS	_____	hours/month	91-93
ESTIMATING	_____	hours/month	94-96
INVENTORY	_____	hours/month	97-99
PAYROLL	_____	hours/month	100-102
TAXES: QUARTERLY	_____	hours/month	103-105
TAXES: YEARLY	_____	hours/month	106-108

Finally, we would like to ask a few questions about you and your business.

Q-44 What is the form of your business organization? (Circle number)

1 PROPRIETORSHIP 1
2 PARTNERSHIP
3 CORPORATION

Q-45 Please classify your major business activity, using one of the categories of examples below: (If more than one applies, circle the ONE which contributes the most toward your gross sales or total revenues.)

1 CONSTRUCTION (building contractors-general, painting, carpentry, plumbing, heating, electrical, etc.; highway and bridge contractors; swimming pool construction; etc.)
2 MANUFACTURING (including dairy processor, printer, publisher, etc.)
3 TRANSPORTATION, COMMUNICATION, PUBLIC UTILITIES (truckers, movers, broadcasters, etc.) 2
4 WHOLESALE (including grain elevator, livestock dealer, distributor of construction equipment, manufacturer's representative, etc.)
5 RETAIL (including food store, service station, restaurant, bar, radio and TV store, drug store, furniture and appliances, auto dealer, florist, apparel, etc.)
6 AGRICULTURE, FORESTRY, LOGGING FISHERIES, etc.
7 FINANCIAL, INSURANCE, REAL ESTATE, BANK, SAVINGS AND LOAN, etc.
8 BUSINESS OR PERSONAL SERVICE (beauty salon, barber shop, garage, motel, hotel, repair service, travel agency, bookkeeping service, photographer, funeral director, rental agency, credit bureau, laundry, etc.)
9 PROFESSIONAL SERVICES (physician, dentist, attorney, optometrist, engineer, architect, veterinarian, accountant, skilled nursing care facility, etc.)
10 OTHER (please describe):_____

Q-46 During your last fiscal or calendar year, what were your GROSS SALES, or revenues, net of sales taxes, and other excise taxes? (Circle number)

1 UNDER $100,000
2 $100,000 TO 199,999
3 $200,000 TO 349,999 3
4 $350,000 TO 499,999
5 $500,000 TO 799,999
6 $800,000 TO 1,499,999
7 $1,500,000 TO 2,999,999
8 $3,000,000 TO 4,000,999
9 $5,000,000 OR MORE

Q-47 How many full-time and part-time employees do you have, including yourself?

_____ full-time employees 4-6
_____ part-time employees 7-9

Q-48 How much has your gross sales increased or declined in the last 2 years? (Circle number)

1 BUSINESS LESS THAN 2 YEARS OLD
2 DECLINED BY MORE THAN 25% 10
3 DECLINED BY 5 TO 25%
4 NO CHANGE
5 INCREASED BY 5 TO 15%
6 INCREASED BY 16 TO 25%
7 INCREASED BY 26 TO 50%
8 INCREASED BY MORE THAN 50%

Q-49 How many full-time and part-time employees, including yourself, did you have 2 years ago? (If business is less than 2 years old, answer "0")

_____ full-time employees 11-1

_____ part-time employees 14-1

Q-50 How long have you owned your present business?

_____ years 17-1

Q-51 How much do you expect your gross sales to change over the next 2 years? (Circle number)

1 DECLINE BY MORE THAN 25%
2 DECLINE BY 5 TO 25% 19
3 NO CHANGE
4 INCREASE BY 5 TO 15%
5 INCREASE BY 16 TO 25%
6 INCREASE BY 26 TO 50%
7 INCREASE BY MORE THAN 50%

Q-52 Do you anticipate making major changes in the way your firm is organized in the next 2 years?

1 YES 20
2 NO

Q-53 How old are you?

_____ years of age 21-22

Q-54 What is your highest level of formal education? (Circle number)

1 LESS THAN HIGH SCHOOL
2 HIGH SCHOOL COMPLETION 23
3 SOME COLLEGE
4 BACHELOR'S DEGREE
5 GRADUATE DEGREE

☐ Check here if you would like a free copy of this survey's results. 24

Is there anything else you would like to tell us about the ways of using computers in small businesses and the costs, benefits, or problems of doing so? If so, please use this page for that purpose. Also, we would appreciate any comments you wish to make about how we could further study the role of computers in small businesses. Please comment here or in a separate letter.

PLEASE DO NOT REMOVE THIS LABEL
(Used for compiling geographic and industry information)

YOUR CONTRIBUTION TO THIS EFFORT IS VERY GREATLY APPRECIATED.